

**A TWO PORT VOLTAGE CONTROLLED OSCILLATOR FOR USE IN  
WIRELESS PERSONAL AREA NETWORK SYNTHESIZERS**

**ABSTRACT OF THE DISCLOSURE**

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A voltage controlled oscillator (VCO) for use in a personal area network synthesizer includes a delay cell (100), a first current amplifier (201, 203) for amplifying an input current, a resistor capacitor (RC) tuning network (207, 209, 211) for varying the amount of amplification and delay of an output of the first current amplifier. A second  
10 current amplifier (213, 215) is then used for amplifying an output current from the RC tuning network. The invention includes a unique composite voltage variable capacitor (CVVC) (300) for precisely tuning the amount of delay presented by the delay cell. The unique topology of the delay cell (100) allows it to be readily used in voltage controlled oscillators (VCOs) operable at frequencies above 1 GHz.